Western States, with early lambing in the north Pacific area advanced at the close of the month.

Following the damage to truck crops in the Southern States early in the period, the weather was generally favorable and replanting was active. In Florida showers were very beneficial the latter part of the month, but moisture was deficient in that State during most of the time. There was much defoliation of citrus trees, and unprotected groves suffered considerable injury in parts of California by cold weather the last half of the month. Sharp cold periods, however, in Southern States were favorable in retarding the unseasonable advance of fruit buds, and deciduous trees were apparently in good condition at its close.

# WEATHER ON THE ATLANTIC AND PACIFIC OCEANS

## NORTH ATLANTIC OCEAN

By F. A. YOUNG

As shown on the Pilot Chart, January is normally the stormiest month of the year over the North Atlantic, and during the current month the number of days with gales was equal to, if not in excess of, the normal over the greater part of the steamer lanes. In the 5° square between the forty-fifth and fiftieth parallels and the thirty-fifth and fortieth meridians gales were reported on 11 days, and at times the storm area extended as far south as the thirty-fifth parallel, accompanied by comparatively high barometric readings.

It will be remembered that December was also an unusually stormy month, but the conditions were materially different from those of January. In December there were long periods of low pressure over the area usually occupied by the North Atlantic HIGH, while at the same time anticyclonic conditions prevailed in the vicinity of Iceland. In January, on the contrary, both the North Atlantic HIGH and Icelandic LOW were unusually well developed, as indicated by the large plus and minus pressure departures at Horta and Lerwick, respectively, as shown in Table 1. In both months gales of force 11 and 12 were not uncommon, but in December the usual "westerlies" were often replaced by easterly winds.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, 8 a. m. (75th meridian), North Atlantic Ocean, January, 1928*

| Stations | Average pressure | Departure [1] | Highest | Date | Lowest | Date |
|---|---|---|---|---|---|---|
| | *Inches* | *Inch* | *Inches* | | *Inches* | |
| Belle Island, Newfoundland | 29.59 | −0.21 | 30.20 | 4th [2] | 28.47 | 26th. |
| Halifax | 29.88 | −0.12 | 30.38 | 16th [2] | 29.24 | 21st. |
| Nantucket | 29.93 | −0.16 | 30.56 | 16th | 29.08 | 25th. |
| Hatteras | 30.14 | +0.01 | 30.56 | 6th | 29.76 | 20th. |
| Key West | 30.17 | +0.08 | 30.38 | 6th [2] | 30.00 | 19th. |
| New Orleans | 30.11 | +0.16 | 30.60 | 3d [2] | 29.88 | 19th. |
| Cape Gracias | 29.99 | +0.04 | 30.10 | 29th | 29.90 | 31st. |
| Turks Island | 30.14 | +0.09 | 30.28 | 6th | 30.10 | 1st. [2] |
| Bermuda | 30.13 | +0.08 | 30.50 | 6th | 29.84 | 11th. |
| Horta, Azores | 30.41 | +0.31 | 30.76 | 5th [2] | 29.86 | 17th. |
| Lerwick, Shetland Islands | 29.38 | −0.32 | 30.06 | 1st | 28.77 | 10th. |
| Valencia, Ireland | 29.83 | −0.07 | 30.35 | 5th | 29.38 | 15th. |
| London | 29.89 | −0.11 | 30.37 | 1st | 29.47 | 16th. |

[1] From normals shown on H. O. Pilot Chart based on observations at Greenwich mean noon, or 7 a. m. 75th meridian time.
[2] And on other dates.

The number of days with fog was less than usual over the Grand Banks and steamer lanes, about normal off the American coast between Hatteras and Nantucket, and considerably above in the Gulf of Mexico, where it was reported on seven days.

On the 1st and 2d cyclonic conditions existed off both the American and European coasts. From the 3d to 5th comparatively moderate weather prevailed over the ocean as a whole, being the only period during the month in which a cyclonic disturbance did not occur, although on the 9th the gales were limited to a restricted area between the fifteenth and twentieth meridians.

From the 6th to 8th the middle section of the steamer lanes was swept by westerly gales, and from the 10th to 15th the same conditions prevailed in the eastern section.

On the 16th an exceptionally severe disturbance was central near 50° N., 35° W., with winds of hurricane force reported by vessels near the center.

From the 18th to 20th the greater part of the steamer lanes was storm swept, and on the latter date westerly gales also prevailed over the region north of the Bermudas, west of the sixtieth meridian.

On the 26th there was a heavy storm in the Mediterranean, as shown by storm report in table from the Am. M. S. *William Penn.*

Charts VIII to XIII cover the period from the 21st to 26th inclusive and give an idea of the extremely turbulent conditions which existed at that time.

On the 27th and 28th heavy weather still prevailed in midocean, although the storm area had contracted somewhat since the 26th.

On the 27th a "norther" was reported from the western section of the Gulf of Mexico.

On the 28th Hatteras was near the center of a LOW and moderate northwest gales prevailed along the east coast of Florida. This disturbance moved slowly northeastward, increasing in intensity, and by the 30th was over Newfoundland.

On the 31st a depression over the eastern section of the steamer lanes was responsible for moderate to strong westerly gales between the thirty-fifth meridian and European coast.

# OCEAN GALES AND STORMS, JANUARY, 1928

| Vessel | Voyage | | Position at time of lowest barometer | | Gale began | Time of lowest barometer | Gale ended | Lowest barometer | Direction of wind when gale began | Direction and force of wind at time of lowest barometer | Direction of wind when gale ended | Highest force of wind and direction | Shifts of wind near time of lowest barometer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | From— | To— | Latitude | Longitude | | | | | | | | | |
| **North Atlantic Ocean** | | | ° ′ | ° ′ | | | | *Inches* | | | | | |
| American Shipper, Am. S. S. | London | New York | 40 52 N. | 67 47 W. | Jan. 1 | Noon, 1 | Jan. 2 | 29.49 | SSW | SSW | W | W., 9 | SSW.-W. |
| John W. Mackay, Br. S. S. | Halifax | Cable operations. | 49 56 N. | 39 20 W. | Jan. 6 | 8 a., 6 | Jan. 8 | 29.49 | SW | SW., 6 | W | SW., 10 | SW.-W. |
| Stockholm, Swed. S. S. | Gothenburg | New York | 58 18 N. | 10 36 W. | Jan. 7 | 11 p., 7 | Jan. 8 | 28.80 | W | WSW., 9 | W | W., 11 | SW.-W. |
| City of Flint, Am. S. S. | Boston | London | 48 51 N. | 35 00 W. | Jan. 11 | 10 a., 11 | Jan. 11 | 29.19 | SW | SW., 10 | SW | —, 10 | Steady. |
| Rockaway Park, Am. S. S. | Liverpool | Boston | 46 39 N. | 30 20 W. | Jan. 13 | Noon, 13 | Jan. 14 | 29.42 | SSW | SSW., 8 | WNW | WSW., 12 | SSW.-WSW. |
| Breedijk, Du. S. S. | Galveston | Rotterdam | 45 15 N. | 40 44 W. | Jan. 15 | 6 a., 16 | Jan. 16 | 28.85 | S | WNW., 11 | NW | WNW., 12 | S.-NW. |
| Inkum, Br. S. S. | Newport News. | Liverpool | 48 23 N. | 32 08 W. | Jan. 16 | 1 p., 16 | Jan. 16 | 29.13 | S | S | WSW | S., 12 | |
| Ampetco, Belg. S. S. | Baton Rouge. | Rotterdam | 39 48 N. | 58 37 W. | Jan. 17 | 2 p., 17 | Jan. 20 | 29.37 | SW | W., 10 | Var. | WNW., 12 | SW.-WNW. |
| Rockaway Park, Am. S. S. | Liverpool | Boston | 45 43 N. | 37 42 W. | Jan. 16 | Noon, 18 | Jan. 23 | 28.96 | S | W., 10 | WNW | —, 12 | SSW.-W. |
| Mercian Br. S. S. | Manchester | New York | 50 01 N. | 26 42 W. | Jan. 18 | 1 p., 19 | Jan. 20 | 28.71 | SSE | SW | W | —, 12 | S.-WSW. |
| Balsam, Am. S. S. | Glasgow | Baltimore | 45 10 N. | 21 29 W. | Jan. 16 | 8 a., 19 | Jan. 20 | 29.36 | S | SSW., 11 | NW | SSW., 11 | |
| William Penn, Am. M. S. | Karachi, India. | New York | 37 20 N. | 10 16 E. | Jan. 20 | 2 p., 20 | Jan. 21 | 30.10 | NW | NW., 9 | NW | NW., 12 | |
| Casper, Am. S. S. | Sarpsborg, Norway. | Portland, Me. | 51 32 N. | 43 18 W. | Jan. 22 | 8 a., 22 | Jan. 28 | 28.93 | WNW | WNW., 9 | NW | NW., 12 | Steady. |
| Ampetco, Belg. S. S. | Baton Rouge. | Rotterdam | 47 35 N. | 30 54 W. | Jan. 23 | Noon, 23 | Jan. 26 | 29.81 | WNW | WNW., 9 | WNW | WNW., 12 | Do. |
| Thuringia, Ger. S. S. | Cobh | Boston | 49 57 N. | 25 41 W. | Jan. 24 | Mdt., 24 | Jan. 25 | 29.74 | SW | SW., 11 | WSW | —, 12 | |
| Providence Fr. S. S. | Lisbon | New York | 39 23 N. | 64 36 W. | Jan. 24 | 9 a., 25 | Jan. 26 | 29.61 | SE | S., 10 | W | S., 10 | S.-SSW. |
| Arkansas, Dan. S. S. | South Shields | Baltimore | 56 15 N. | 24 00 W. | Jan. 23 | 1 a., 25 | Jan. 26 | 28.66 | WSW | SSW., 11 | NW | NW., 12 | SW.-NW. |
| Reliance, Ger. S. S. | New York | San Juan | 39 30 N. | 73 30 W. | Jan. 25 | 4 p., 25 | Jan. 26 | 29.63 | WNW | WNW., 11 | W | WNW., 11 | Steady. |
| Hellig Olav. Dan. S. S. | Oslo | New York | 52 40 N. | 41 25 W. | Jan. 26 | 4 p., 26 | Jan. 28 | 29.18 | SSE | SW., 7 | W | WSW., 11 | SSE.-SW. |
| Monterey, Am. S. S. | New York | Tampico | 19 24 N. | 95 42 W. | Jan. 27 | 5 a., 27 | Jan. 28 | 30.11 | N | N., 6 | N | N., 8 | Steady. |
| Thuringia, Ger. S. S. | Cobh | Boston | 47 30 N. | 34 45 W. | Jan. 26 | 4 a., 27 | Jan. 27 | 29.94 | SSW | SSW., 10 | SSW | —, 11 | Do. |
| Cabo Espartel, Span S.S. | Malaga | New York | 34 22 N. | 68 05 W. | Jan. 27 | 4 a., 28 | Jan. 30 | 29.56 | WSW | WSW., 10 | WNW | —, 10 | |
| Balsam, Am. S. S. | Glasgow | Baltimore | 38 54 N. | 61 00 W. | Jan. 27 | 5 p., 29 | Jan. 30 | 29.52 | SW | SW., 12 | NNW | SW., 12 | |
| Trinculo, Br. S. S. | Curacao | Avonmouth | 46 00 N. | 15 03 W. | Jan. 28 | Mdt., 29 | Jan. 29 | 29.81 | SW | NW | ESE | NW., 10 | NW.-WNW. |
| Columbus, Ger. S. S. | Cherbourg | New York | 48 18 N. | 32 13 W. | Jan. 30 | Mdt., 30 | Jan. 31 | 29.68 | SW | WSW., 7 | NNW | WSW., 10 | Steady. |
| Atlanta City, Am. S. S. | Port Said | Gibraltar | 36 20 N. | 3 15 W. | Jan. 30 | 1 a., 30 | Jan. 30 | 29.65 | NNW | NNW., 8 | NNW | NNW., 9 | SW.-S.-NNW. |
| Arkansas, Dan. S. S. | South Shields | Baltimore | 50 20 N. | 35 08 W. | Jan. 30 | 1 a., 31 | Feb. 1 | 29.45 | SW | SW., 12 | NW | —, 12 | WSW.-NW. |
| Lorain, Am. S. S. | Hamburg | do | 37 — N. | 62 — W. | Jan. 31 | 1 p., 31 | Jan. 31 | 30.26 | WSW | WSW., 9 | NW | NNW., 9 | SW.-W. |
| **North Pacific Ocean** | | | | | | | | | | | | | |
| Aorangi, Br. M. S. | Honolulu | Victoria | 31 40 N. | 148 26 W. | Jan. 1 | 3 a., 2 | Jan. 4 | 29.33 | SW | W., 6 | S | S., 10 | W.-WSW. |
| Stanley, Am. S. S. | Pulupandan | San Pedro | 34 00 N. | 160 20 W. | 1 | 2 p., 1 | 4 | 29.18 | NNW | WNW., 7 | W | W., 10 | NNE.-WNW. |
| Malolo, Am. S. S. | San Francisco. | Honolulu | 31 16 N. | 140 07 W. | 2 | Noon, 2 | 3 | 29.74 | SW | WSW., 9 | WNW | WSW., 9 | SW., 3-WSW. |
| Havre Maru, Jap. S. S. | Los Angeles | Yokohama | 32 34 N. | 144 55 E. | 2 | 9 p., 2 | 3 | 29.48 | SSW | WSW., 9 | W | W., 9 | SSW.-W. |
| West Niger, Am. S. S. | Columbia River. | do | 41 00 N. | 150 00 E. | 2 | Mdt., 3 | 4 | 29.10 | SE | WNW., 6 | NW | NW., 12 | SE.-WNW. |
| Atlantic Maru, Jap. S. S. | Kobe | San Francisco. | 43 10 N. | 141 16 W. | 3 | Noon, 3 | 4 | 28.84 | | S., 9 | | SW., 10 | S.-SW. |
| Paris Maru, Jap. S. S. | Vancouver | Yokohama | 42 20 N. | 148 20 E. | 3 | 2 p., 3 | 4 | 28.61 | W | W., 11 | NW | W., 11 | W.-NW. |
| Tamaha, Br. S. S. | Shanghai | San Pedro | 40 06 N. | 176 10 E. | 3 | 5 p., 5 | 7 | 29.12 | SSE | NW., 8 | NW | WNW., 10 | W.-NNW. |
| Bohemian Club, Am. S. S. | Balboa | do | 15 34 N. | 98 44 W. | 5 | 6 p., 5 | 6 | 29.94 | N | N | N | N., 10 | Steady. |
| Makiki, Am. S. S. | Seattle | Honolulu | 36 44 N. | 143 16 W. | 6 | 4 p., 6 | 6 | 29.50 | SSW | S., 8 | SW | SW., 9 | |
| Silvercedar, Br. M. S. | Manila | San Francisco. | 34 58 N. | 162 23 W. | 6 | 4 a., 7 | 7 | 29.31 | NW | W | WNW | W., 9 | NW.-W. |
| Robin Adair, Am. S. S. | Balboa | San Pedro | 16 00 N. | 94 40 W. | 6 | 2 a., 7 | 7 | 30.10 | N | NNW., 10 | NE | NNW., 10 | N.-NNW. |
| Bessemer City, Am. S. S. | Los Angeles | Yokohama | 30 20 N. | 146 50 E. | 7 | 4 a., 8 | 9 | 29.87 | NW | NW., 8 | NNE | NW., 9 | |
| Kohshun Maru, Jap. S. S. | Miike | Coos Bay | 48 23 N. | 168 15 W. | 8 | Mdt., 8 | 9 | 28.59 | E | NE., 10 | N | NE., 10 | NE.-N. |
| Akagisan Maru, Jap. S. S. | Yokohama | San Francisco. | 46 50 N. | 155 09 W. | 9 | Noon, 9 | 11 | 28.57 | SSE | SSW., 9 | WSW | SSE., 10 | SSE.-WSW. |
| Meiyo Maru, Jap. S. S. | Vancouver | Yokohama | 41 43 N. | 147 23 E. | 11 | 8 p., 11 | 13 | 29.54 | W | WNW., 2 | NW | W., 9 | |
| Tahchee, Br. S. S. | Cebu | San Pedro | 39 40 N. | 165 54 W. | 16 | 8 p., 17 | 17 | 29.70 | S | S., 10 | SSW | S., 10 | S.-SSW. |
| Emp. of Russia, Br. S. S. | Yokohama | Victoria | 49 43 N. | 170 35 W. | 17 | 4 a., 18 | 18 | 29.38 | NW | WNW., 8 | W | WNW., 9 | WNW.-W. |
| Do | do | do | 50 11 N. | 142 47 W. | 20 | 3 p., 20 | 20 | 29.51 | N | N., 9 | N | N., 9 | Steady. |
| Las Vegas, Am. S. S. | Kobe | Portland | 46 05 N. | 164 15 E. | 19 | | 20 | 28.46 | ENE | NNE., 4 | ENE | ENE., 11 | |
| Tacoma, Br. S. S. | Yokohama | San Francisco. | 40 00 N. | 153 15 E. | 18 | 4 a., 19 | 21 | 29.02 | ESE | W., 9 | NW | W., 9 | ESE.-WSW. |
| Grace Dollar, Am. S. S. | Manila | do | 31 18 N. | 144 51 E. | 20 | 8 a., 20 | 21 | 30.08 | NW | NW., 8 | NNW | NW., 9 | Steady. |
| Do | do | do | 34 16 N. | 168 00 E. | 26 | 2 a., 26 | 26 | 29.93 | S | S., 7 | SSW | S., 9 | Do. |
| Edenton, Am. S. S. | Pulupandan | Honolulu | 16 40 N. | 145 45 E. | 20 | 4 p., 21 | 24 | 29.83 | NE | NE., 7 | ENE | NE., 8 | NE.-E. |
| Lio, Am. M. S. | San Francisco. | Balboa | 15 33 N. | 94 40 W. | 22 | 2 p., 22 | 22 | 29.95 | NE | NNE | NE | NE., 10 | NE.-NNE. |
| Makaweli, Am. S. S. | Bellingham | Hilo | 36 21 N. | 141 11 W. | 27 | Mdt., 27 | 28 | 29.78 | NNE | NNE., 7 | NE | N., 9 | NE.-N. |
| Jadden, Am. S. S. | San Pedro | New Orleans | 14 50 N. | 96 20 W. | 28 | 4 p., 28 | 29 | 29.84 | E | ENE | N | NNE., 10 | E.-NE.-N. |
| Archer, Am. S. S. | Pulupandan | San Pedro | 41 08 N. | 152 49 E. | 28 | 11 a., 29 | 31 | 29.13 | NE | NE., 7 | W | NW., 9 | |

## NORTH PACIFIC OCEAN

By WILLIS E. HURD

The year 1928 opened with cyclonic weather, accompanied by widespread gales which frequently attained force 10, prevailing over the greater part of the ocean east of the one hundred and eightieth meridian. At this time the only persisting remnants of anticyclones at sea in west longitudes were found off the coast of southern California and at the northern extremity of the Gulf of Alaska. However, this great low pressure area soon began to slowly contract northward, until by the 12th a practically normal barometric condition prevailed, the cyclone now lying over and somewhat to the southward of Aleutian waters; the east Pacific anticyclone in good strength occupying the central part of the ocean; thereafter it remained quite stable until toward the end of January, when a cyclone of some energy moved into its region from the north and disturbed the weather along the east-central part of the upper California-Hawaii routes from the 27th to the 31st.

Pressure over northern waters was considerably below the normal, while along the American coast south of Alaska, and in mid-ocean below the thirtieth parallel, it was above normal. See following table of barometric data: